What is claimed is

1. A method for debugging programs for industrial controllers, in particular motion controllers, where a user links graphical elements, in particular control structures and function blocks, to form a motion control flowchart that can be visualized on a display device by using an editor, comprising the following process steps:

a) The user prepares a debugging process based on the flowchart,

b) The user assigns a suspend command to each graphical element,

c) The debugging process starts,

d) The program sequence continues until a suspend command is reached,

e) The location of the current element in the flowchart is visualized for the user,

f) The user proceeds to the next possible suspend command,

g) Steps d) through f) are continued until the user reaches the end of the flowchart.

2. The method according to claim 1, wherein a task belonging to a graphical element, that has been stopped by a suspend command is continued with a task control mechanism of the run time system.

3. The method according to claim 1 or 2, wherein the user operates a resume command by the task control mechanism of the run time system in the engineering system, thereby advancing the current suspend command.

4. The method according to claims 1, 2 or 3, wherein the task control mechanism of the run time system is used by means of variables in the form of breakpoint debugging which can be pre-assigned by the user in the engineering system.

5. The method according to claims 1, 2, 3, or 4 wherein the variable pre-assignments in the task control mechanism are performed by other programs of the run time system.

6. The method according claim 1, comprising the following successive steps:

a) A structured textual language is generated from the flowchart.

b) The structured textual language is converted in a processor-independent pseudo-code.

c) The processor- independent pseudo-code is loaded into the controller.

d) The processor- independent pseudo-code is converted into executable processor code.

7. The method according to claim 1, comprising that a debugging interface is available to the user at the level of the structured textual language and/or at the level of the pseudo-code and/or at the level of the processor code.

8. A method according to claim 1, comprising that adequate programming language commands are available to the user in the flowchart editor, depending on the basic machine design and/or hardware configuration.

9. The method according to claim 1, wherein additional graphical elements are automatically generated in motion control flowchart representation from user-defined structured text subprograms of the textual language by means of a converter, or compiler, in the manner of a compiler Said graphical elements contain the function interface of the corresponding structured text subprograms and are also made available to the user.

10. The method according to claim 1, wherein the automatically generated graphical elements are used by the user as language elements of the motion control flowchart.

11. The method according to claim 1, wherein structured text according to IEC 6-1131 is used as the structured textual language.

12. The method to claim 11, wherein a user can change as desired between structured textual language, contact plan and/or function plan as forms of representation for formulation conditions.

13. The method according to claim 1, wherein at least one loop and/or at least one parallel branch is present as language elements in the motion control flowchart view.

14. The method according to claim 13, wherein the individual commands are initiated in the same interpolator cycle within the respective parallel branch.

15. The method according claim 1, wherein the parameters can be set for function blocks by mask input in the motion control flowchart view.

16. The method according to claim 1, wherein function blocks are combined into modules which in turn appear as function blocks in the motion control flowchart view.

17. The method according to claim 16, wherein modules are interleaved in the motion control flowchart view.

18. The method according to claim 1, wherein multiple instructions are possible for the user in the function blocks for the allocation of variables in the motion control flowchart view.

19. The method according to claim 1, wherein the function blocks representing functions that claim a period of time contain advance conditions in the flowchart view.

20. The method according to claim 1, wherein the graphical elements of the flowchart are positioned automatically.

21. The method according to claim 1, wherein the graphical elements of the flowchart are linked together automatically.

22. The method according to claim 1, wherein the flowchart is displayed in reduced or enlarged form in the display.

23. The method according to claim 1, wherein re-translation back into motion control flowchart representation is possible by means of marks in the textual language.

24. The method according to claim 1, wherein steps a) through c) are triggered in a collective step.

25. The method according to claim 1, comprising that the current graphical element is visualized on the display device during processing of the flowchart program.